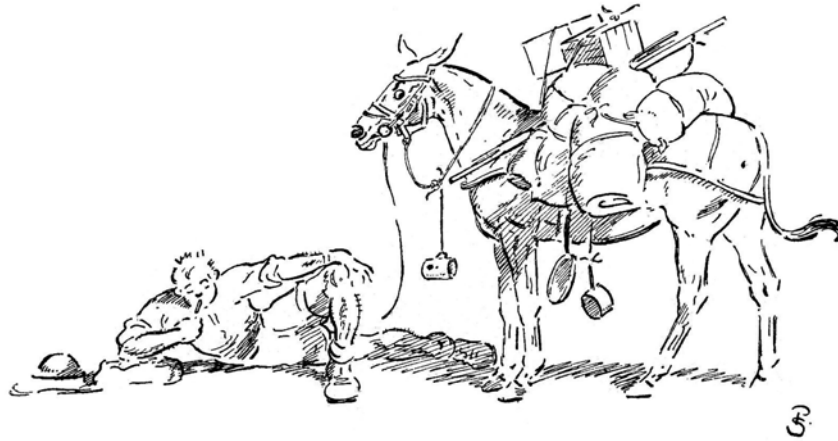


BRITISH ARMY TRANSPORT ANIMALS



Clive Elliott reviews some of the various types of animal that have seen service with the British Army

One might be forgiven for thinking that in this technological age that there is no place for using animals in warfare. However given that the British Army is now rediscovering the advantages of mule transport in some of the most difficult areas of conflict, it seems appropriate to review the range of animals that have been used by the British Army in the last 100 years.

Animals have been used principally as a fighting platform, a means of reconnaissance or for transport. It is the transport role, which will be mainly considered here. Animals can carry a rider, be used in the draught role for towing wagons or carts, as pack animals for directly carrying a load or carrying lighter loads in the role of message carriers. The load that a given species of animal can carry depends not just on its size, but its general fitness and the availability of adequate food and water supplies throughout the journey. The load that it can carry depends on having an efficient saddle that does not cause sores and can distribute the load evenly over the back without interfering with the movement of the limbs. It should also be remembered that a saddle is part of the load and may contribute to about 25% of what the animal is expected to carry. Military payloads tend to be much heavier for a given volume than civilian loads and it is important not to overload the animal simply because goods could be fitted on the saddle.

Time after time it has been shown that animals obtained locally show themselves to be more efficient than animals brought in. This is due to them being accustomed to the local terrain, weather and food supply. Furthermore animals that have been brought in will often be frightened and demoralised by the journey, may have had a poor diet in their transit, may have become unfit or exhausted particularly in the final stage of the journey. Given the desirability of locally available animals, in planning a campaign it may be necessary to vary the numbers of animals allocated to a unit by considering the particular properties of local animals. Animals were often given a payload designation appropriate to the type of unit they were to serve in.

Donkey

Donkeys that can be ridden command a high price and are often not available in significant quantities. Consequently the number of donkeys for military use tended to be small, although they can have a high efficiency in terms of animal size to payload. But the British in Palestine in WW1 used large numbers with great success. The carrying capacity would range from 50 to 150 lb., but 80lb was generally not exceeded. Although the donkey is slow at about 2½ miles an hour, they can amble along covering 15 miles a day, about the same as required of a soldier. For short periods the donkey can be forced to travel 20 miles a day, but it was best to avoid overstretching these hardy little animals. They were quite economical to operate, as they require relatively small rations and would tolerate even poor forage (food). Only mature animals were pressed into service and they tended to be males. Male donkeys are cheaper and more easily obtained than females. Given the well-developed instincts of donkeys, males had to be castrated if females were included in the drove. In India the saddle for a pack donkey is called a *sunka*. This is like a pillowcase filled with straw and bendy sticks and placed over a blanket on the back of the donkey. The proper fitting of a *sunka* and the placing of the load require great skill from the attendant, but even so the arrangement is inferior to a properly fitted saddle of the correct size. Donkeys have been implicated in the spread of pneumonic plague, which is a lung disease passed by droplets as opposed to bubonic plague, which is spread by rats. An ass is just the old fashioned name for a donkey.



A donkey patrol overtakes a Saracen in Cyprus



Pack donkeys in Cyprus

Mule

The mule was a more popular pack animal than the donkey in view of its higher load carrying capacity. A mule is the product of the union of a female pony with male donkey, whereas a jennet is the product of the union of male pony with a female donkey. The jennet resembles a pony at the head and a donkey at the rear. The opposite is true of the mule that resembles a donkey at the head and a pony at the rear. Strictly speaking a jennet should be called a hinny, as a jennet is actually a type small Spanish horse. The use of the term jennet in British military documents is a form of historical insult to the Spanish. Jennets are not very common, as the male horse is reluctant to mate with a female donkey, however the reverse is not true. As previously indicated the male donkey is very ready to mate and has no inhibitions mating outside his species. This means mules are the more plentiful of the hybrids as well as being larger.

Mules can be used as a draught, but the shape of the back lends itself to a saddle and although mules can be ridden their principle role is as a pack animal. Tradition has it that mules can be stubborn, if handled correctly they can be hard working and loyal animals able to endure harsh conditions in terms of climate, food and thirst. Mules are good swimmers, but if taken out of their depth their top heavy load will cause them to turn over and drown. Unless a ford or stream is known to be shallow, the load should be removed before entering the water.



A certain reluctance!

They can be fussy drinkers, preferring to suffer thirst rather than drink from an unfamiliar stream but would drink that same water from a familiar bucket. But in extremes of exertion these animals can show great determination to get a drink. It is recorded that in WW1 a column of mules in Palestine having trekked for 40 miles, were so desperate for a drink that one mule broke away and fell down a well. It took several hours to extricate the mule and at the same time soldiers struggled to restrain up to a dozen mules each to prevent more mules joining the first one. Not only were there water shortages but also the amount of forage was limited. The mules desperate for food would eat their head-ropes then wander off, so they had to be restrained with chains. The mules then turned their attention to their blankets and the straw pillows of their handlers

They tend to be shy with strangers and ready to kick and under fire they are prone to stampede. Although they can be trained to tolerate the noise of the battlefield this is often not possible with locally obtained animals at the start of a campaign. In the circumstances of warfare sometimes animals need to be shipped considerable distances. In the Zulu war of 1879, mules were brought from North America and again in WW1, 275,000 mules were supplied to the British Expeditionary Force. The effort of the BEF in Gallipoli was enhanced by the formation of the Zion Mule Corps in 1915. Not only was this a dedicated mule corps but of particular note that this was the first regular Jewish fighting unit to have a distinctive Jewish insignia for 2,000 years.

Mules can carry light loads from the age of 4 years and heavier loads from 5 years. But it is always best to purchase an older animal of at least 6 years, which will have a better campaign endurance than a younger fresh one. The working life of a mule is considerable, even as long as 20 years.

Mules can be used in the front line where they need one mule driver (muleteer). But in a support role one muleteer can handle two to three mules. With the exception of deep snow and rock climbing, mules can tackle almost any terrain. If the going is sandy they can be used unshod. But on wet or stony ground where there will be significant hoof wear they need shoeing.

Although mules can cover up to 16 miles during a day, only half this distance should be carrying a load. At night time over rough ground the range is about 4 miles. In the jungle the range is limited to what the handler can manage, although the bulkiness of the load can add a further restriction. Mules are not restricted to warm climates they have a role in climates found in Iceland and Norway, provided the snow is not deep.

The daily ration for a mule is about:

Grain	8 lb
Salt	2 oz
Fodder	10 lb
Water	8-12 gallons

They can adapt easily to local foods such as dates, bamboo leaves, elephant grass etc. They are fussy about drinking only clear water and a trek requires planning to obtain water en route. It is impractical for the mule to carry its own water supply, as the payload of the mule would be reduced to virtually nothing. It is likely that where mule transport is needed its rations and those for the driver will have to be carried by the mule.

This has a limiting effect on the range of operation, the greater the distance the longer the journey and the more rations need to be carried. Although as the journey proceeds these rations will gradually be consumed, on that basis it is permissible to overload the mule initially. Normally the total payload for a mule is 160 lb. The ration requirements are:

Mule driver's equipment	5 lb
Mule driver's rations (2 days)	10 lb
Mule's reserve ration (2 days)	10 lb

So after 4 days this additional load will have dwindled to 5lb. For small mules a reduction of payload will need to be made. The problem is that for longer expeditions the useful payload is greatly reduced by having to be self-sufficient with provisions. The rule is that for every day beyond the initial two days then a reduction of 10 lb load is required.

There were wide variations of size of mule. They were classed according to their carrying capacity and origin.

Home service mules

Heavy Draught
Light Draught
Ordnance
Pack

India service mules

Light, Draught
Pack, Artillery
Sapper & Miner
Class I equipment of signal service
Class II equipment, machine guns, Lewis guns of pioneers & infantry
Army Transport, Draught
Army Transport, 1st Class pack
Army Transport, 2nd Class pack

Those represent the more common groups, but wherever mules served they were assessed on their carrying capacity and the theatre of warfare e.g. Mule, Pack (Sudan). With time the role of the mule decreased and by 1959 there were only two categories recognised, Mule, Mountain Artillery (MA) and Mule, General Service (GS).

When mules are to be used on a regular basis, the mule unit is administered along similar lines to the equivalent general transport supply unit. Personnel selected for mule training must be proficient in, not just leading, but mule management and loading. Handling animal transport was officially described as "a strange experience to most staff officers". In WW2 training was undertaken in the Transport (Animal) Company of the RASC Training Battalion where the course would not exceed eight weeks.

Mules can travel 20-25 miles a day at 3-4 mph compared with donkey's range of 15 miles at 2½ mph. A soldier in the role of leader should usually lead a pack of three mules; they are not to be strung together in long lines and on rough hillsides they cope better if they are not tied at all. As a rule of thumb a loaded mule can access any gradient that a man can do without the use of his hands. Mules can be led or driven; the latter is preferable particularly up steep and awkward terrain where they demonstrate their ingenuity. In open country they can be led in a broad front, this is particularly useful in getting everyone moving after breaking camp and avoids animals being fatigued by bearing loads but not moving.

It is important to load pack animals in a balanced way and to properly tie on the load to prevent slippage, which could cause sore backs and reduce the animal's resolve. At camp, the loads should be laid out and balanced before placing on the animal. Loading parties are allocated to assist the driver trying to ensure that the animals are loaded only just before the column moves off. If possible the load should be removed at halts.

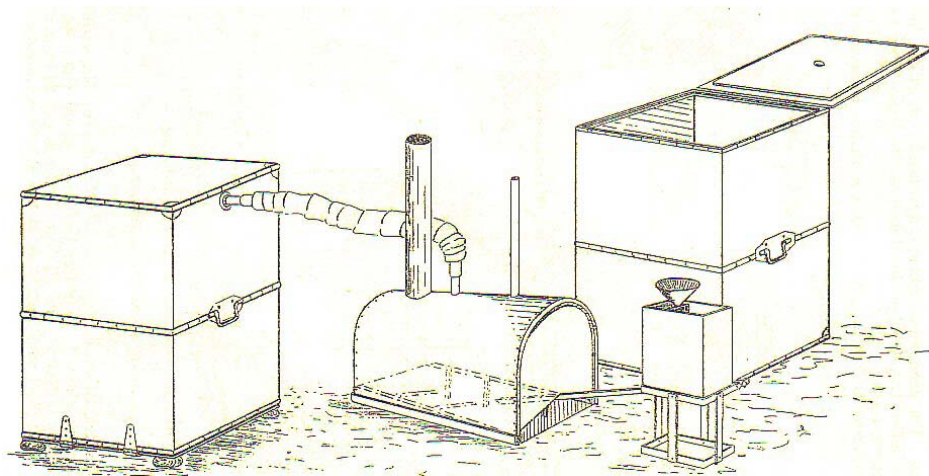
Mules being of pony descent have very similar requirements to a pony of similar size; this includes the need for shoeing if the terrain requires it. Much of the harness and saddlery is identical to that for ponies and horses. Great attention should be paid to expert fitting of saddles to a particular mule and were not to be interchanged. If a change of saddle was needed in an emergency, then the load should be reduced.



Difficult terrain in Kenya (Photo, M.G.Hodges)

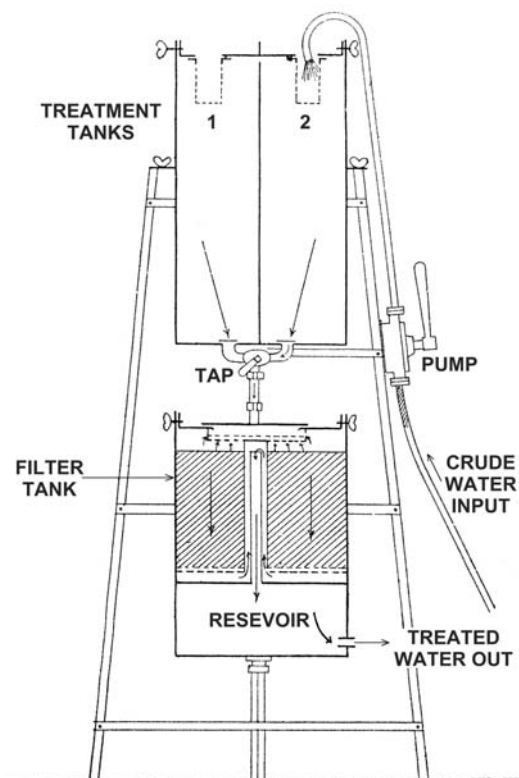
There was a range of specialised equipment designed to be carried on a mule pack.

Typical of these is the *Mule Pack Disinfector* designed to provide small units with a compact and simple disinfecting plant. The equipment consisted of two wooden boxes, 17 in x 18 in x 32 in, lagged with a blanket and lined with thin metal. Steam from a tube was passed through a hole at the top and displaced downwards to an exit hole at the base. A modified oil drum was used to combust oil and water to generate steam, which was then passed through a pipe to one of the boxes. Meanwhile the other box was being loaded with items needing disinfecting to then await the steam pipe being connected to that box. With each box holding a maximum of 7 blankets, the equipment could disinfect about 27 blankets an hour, during which time the steam generator would consume 7 pints of crude oil and 4 pints of water.



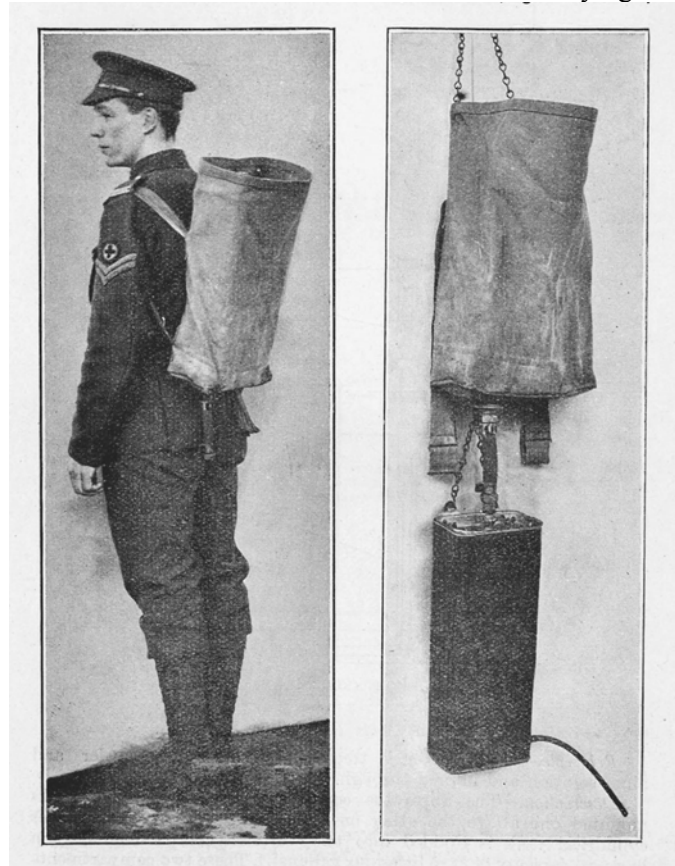
Mule Pack Disinfector

A mule pakhal (tank) carries 6½ gallons of water, which is a weight of 54 lb. It must be remembered that the payload is not just the water but the tank and saddlery as well. As a mule can carry only a modest payload, it was likely that most mule units would need to make use of water discovered along the way. The assumption made, at least for humans, was that any water source discovered should always be considered unfit to drink. It was essential to have compact sterilization equipment that could be carried by a mule or porter (coolie). An example of this is the Mule Pack Filter. This consists of two cylindrical tanks fitted one above the other on a collapsible frame fitted with a pump. The upper tank is divided vertically into two so that crude water can be fed into just one chamber and mixed with aluminium sulphate and bleaching powder. A tap allows the treated water to pass into the lower cylinder, which is divided into two chambers horizontally. The upper chamber filters the water through silex or crushed flint and the flows to a lower chamber for storage and distribution through taps. Whilst this water is being processed, the other half of the upper tank is being fed with water from the pump at the side of the frame. A continuous flow of treated water is maintained by switching the tap between the upper chambers, each of which had a capacity of 6 gallons.



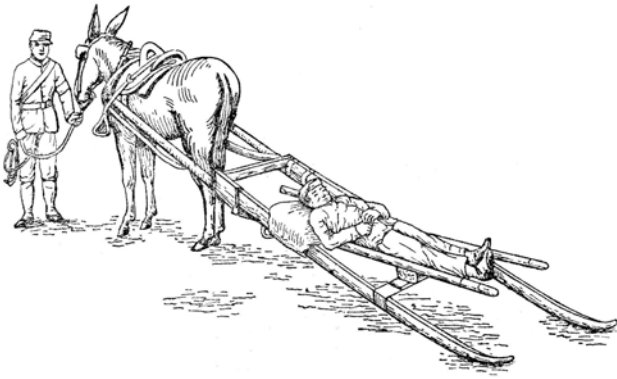
Mule Pack Filter

Where payload was restricted there was also smaller man-portable filter that worked on a similar principle. But here a canvas reservoir also served as the means of carrying the filter tank.

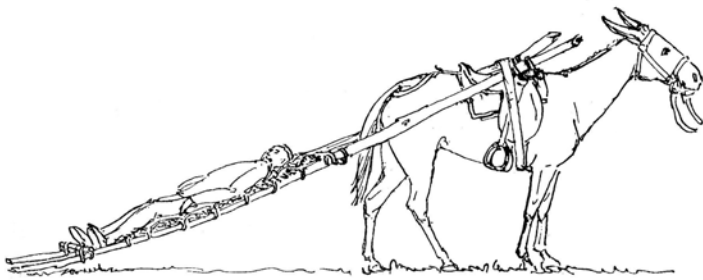


Small Coolie Pack Filter

In parts of countries inaccessible to wheeled vehicles, the mule can be used in an ambulance role by dragging a patient in a *travois*. Surgeon General Greenleaf, U.S. Army, developed the best known of these devices. Although the trestles slope downwards, the patient is supported horizontally. Made of wood with iron fittings the travois weighed 50 lb, but it is not difficult to make an improvised version from two poles, odd bits of wood and some rope.

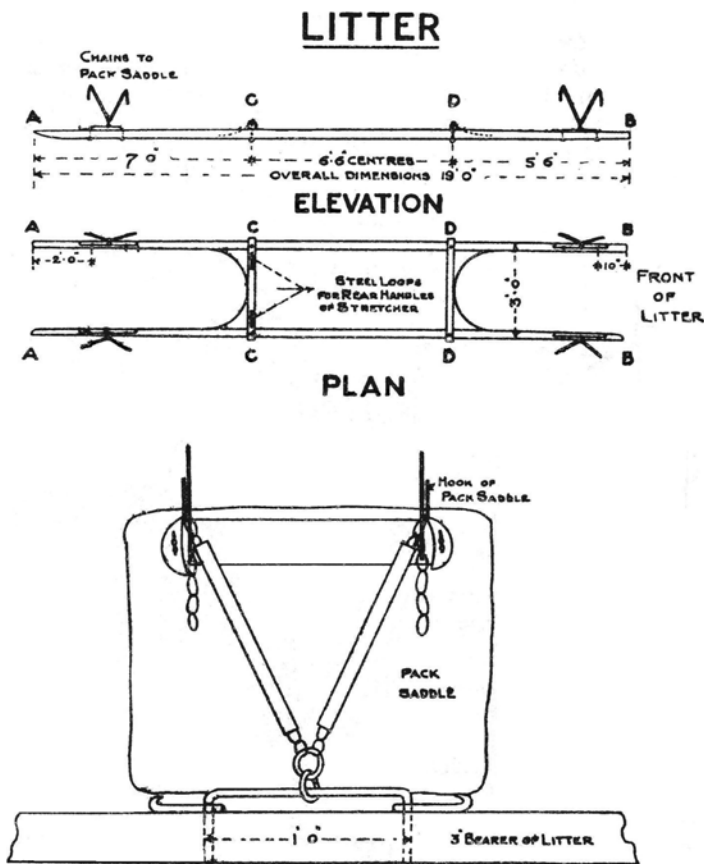


Greenleaf's Travois



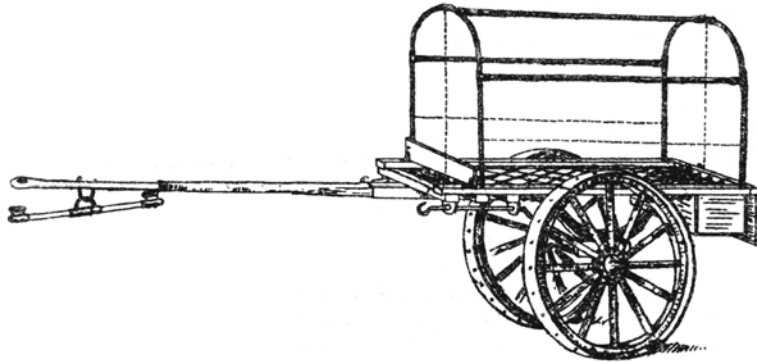
Improvised Travois

Clearly a casualty carried on travois would suffer quite a bumpy ride. Much more comfort is afforded by the casualty being carried on his stretcher mounted on a frame between two mules, the mule litter. The basis of the litter was two poles 19 feet long and 3 inches thick, two wooden cross pieces linking the poles. Rectangular iron runners one foot long were fitted to the near the end of each pole for attachment to the packsaddles. The iron runners with a combined length of 2 feet helped absorb any pushing or tugging if the mule steps varied.



Sharing the weight of a casualty between two mules is advantageous, as it doesn't exceed the animal's rated payload. But the carrying of two casualties by one mule clearly does. The Egyptian *cacolet* will rapidly exhaust a mule, in this arrangement a patient is carried on each side of the mule. The patients face forwards and are seated on folding chairs attached by hooks to the packsaddle.

Moving a casualty across snow by mule drawn sleigh has been successful. But in the desert, sledges would easily overturn; using a travois caused the poles to drag down into the sand. But some success was had using a cart with wide wheels. The *Desert Ambulance Cart* was a two-wheeled sprung cart drawn by 4 mules. The wheels were fitted with metal rims 9 to 12 inches wide; these were sufficiently wide to prevent deep furrowing in the sand.



Desert Ambulance Cart

Although the mule is a small animal, if the payload was distributed amongst a number of mules, even formidable weapons could be used in mountain warfare. A good example of this was the *Screw-Gun*. This was a 7-pdr steel gun that was made in two sections for easy transportation that were then screwed together and mounted on a carriage that was itself carried in three sections. Five mules could carry the screw gun and its associated stores. Twelve such guns were made by Elswick Ordnance Company and saw service in Afghanistan in 1879. Large numbers of similar guns were made by the Royal Gun Factory and remained the weapon of choice for mountain warfare for over twenty years. Although cordite was introduced in 1892, the screw gun still relied on gunpowder cartridges. The smoke immediately revealed the firing place and consequently was not popular with gunners. It was not popular with Rudyard Kipling who wrote a poem dedicated to screw guns, here is the first verse.

SMOKIN' my pipe on the mountings, sniffin' the mornin' cool,
I walks in my old brown gaiters along o' my old brown mule,
With seventy gunners be'ind me, an' never a beggar forgets
It's only the pick of the Army that handles the dear little pets—'Tss! 'Tss!
For you all love the screw-guns the screw-guns they all love you!
So when we call round with a few guns, o' course you will know what to do—hoo! hoo!
Jest send in your Chief an' surrender it's worse if you fights or you runs:
You can go where you please, you can skid up the trees, but you don't get away from the guns!

Double-Humped Camel

The double-humped camel is a tough; hairy and powerful animal capable of marching in snow covered mountains. Although the Russians have used them in campaigns in Asia their habitat was outside the operational areas where the British Army have needed to use camel transport.

Single-Humped Camel

The single-humped camel is lighter, less hairy and longer legged than the double-humped camel. It is bred in hotter climates that include Arabia, Northern Africa, Egypt, Sudan, Abyssinia, Somaliland and India. By selective breeding two main types of camel have evolved.

The riding camel such as the Sowari in India and the Hagheen in Egypt is the camel equivalent of a thoroughbred horse. It is said that riding a camel even over long distances is not uncomfortable provided the speed does not exceed 6 mph, although this will depend on the type of seat. In India the seat resembles a horse's saddle, in that the rider sits astride and has stirrups allowing the rider to rise up on the trot, this makes travelling at speed more comfortable. Seats in other regions tend to be made of wood in a cup-shape and padded with rugs; there are no stirrups and the rider travels by being bumped along, particularly uncomfortable when at full speed of 10 mph.

The British valued the type of camel bred as a baggage carrier; these camels can carry 250 to 450 lb up to 20 miles a day. The large pattern packsaddle weighs about 80 lb and the small pattern 56 lb. Although a camel can endure up to 10 days without water, contrary to popular belief the hump is not a water storage organ and like all animals, camels should ideally be watered at least daily. They can be stoical and endure pain, hunger and thirst with little complaining, so much so that the only indication that the animal's tolerance has been exceeded is when it drops dead. Generally camels are docile and under fire they are less likely to panic than other animals, when made to kneel they will keep quiet and still. However males are prone to fits of rage, particularly in the rutting season. At this time he can attack other camels for no reason, biting them in the withers and testicles. During a bad mood, humans can also be attacked. A halt should be made every hour for 5-10 minutes to allow the camels to urinate. For males this is a slow process and caution is needed as the waste is ejected backwards.

It is particularly important with camels to choose animals that are used to the local conditions. This is not just the terrain, but also the range of temperatures expected and the likely intervals to watering places. The camel is at its prime after 9 years, but for military service an age between 7 to 12 years is suitable. A camel in good condition could be recruited at an age of up to 15 years, but camels under 6 years are too young for immediate service. The purchase of camels can be difficult as often dealers will show the worst animals first and expect the highest price. They can be skilful at hiding sores and enhance a full-bellied look by giving the camel a big drink before the viewing. Although fit and disease free animals are needed often to get adequate numbers, less healthy animals have to be purchased as well. These at least should be in full work at the time of purchase and likely to remain so. The main conditions to avoid are youth, mange and pregnancy. Camels themselves have been implicated in the spread of pneumonic plague.

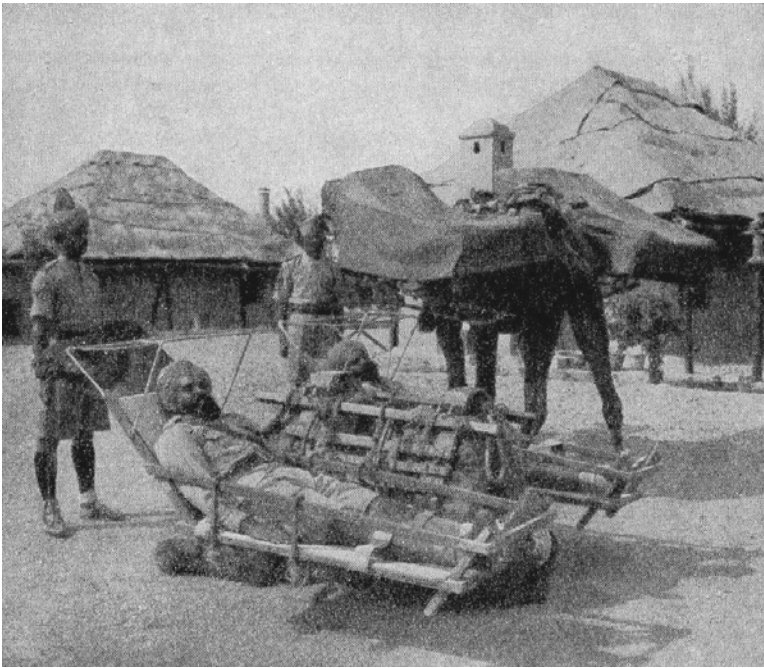
As an herbivore the camel likes to graze, but generally in military service forage has to be substituted. It is recorded that in the Palestine Campaign of 1918, that those animals of the Camel Transport Corps that were given forage did better than those that could graze. The other disadvantages of grazing are that they might refuse to eat from a strange pasture, might suffer bites or injuries, eat poisonous plants, wander off, get injured or stolen.

On favourable terrain a driver, can lead a string of up to eight camels with a driver in the rear. Over poorer terrain the driver would lead two or three camels. Drivers are required to lead the animals and should not be allowed to travel on animal drawn transport or on the animals themselves. Trumpet and bugle calls were not allowed and before wireless communication, contact had to be by horse riders or cyclists. Camels can wade to a depth of 4 feet and if forced to, can swim a considerable distance with the head just above the water.



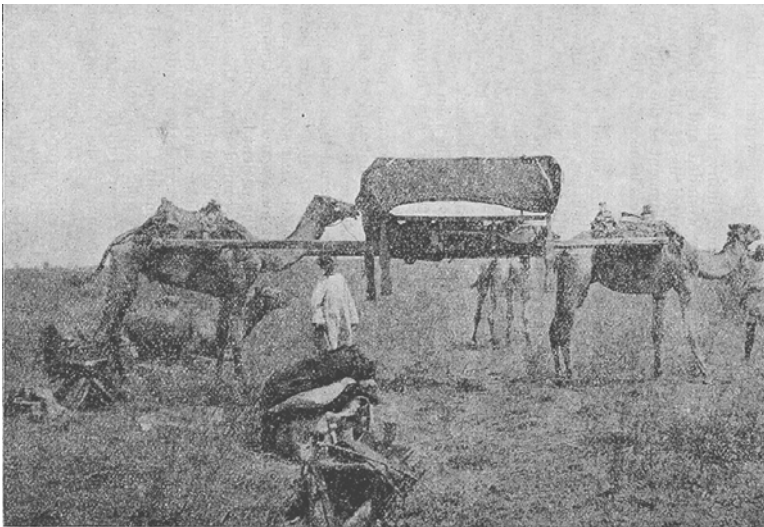
A large camel train halted

Various contrivances have been developed for camels to carry casualties. The British used an adaptation of the Indian *kajawah* and the Turkish *cacolet* to carry a patient on either side of a camel. The wooden framework had iron rings allowing it to be lashed to the packsaddle of the camel. Various configurations were developed with the patients carried lying or sitting. Although not ideal for carrying the severely wounded, in some phases of warfare it was considered the only way to evacuate casualties.



Two patients on a kajawah waiting to be loaded onto a camel

A more comfortable way to transport a casualty was an adaptation of the Indian *charpoy* or Egyptian *angareeb*. A pair of camels can work in unison to provide a very versatile cross-country ambulance litter. These were employed extensively in the Punjab during the Indian Mutiny of 1857-8 (known in India as the First War of Indian Independence). With the development of the railways these camel ambulances became largely unnecessary. Such conveyances can be improvised from just a wooden bed and two poles, such as telegraph poles. It is important that the camels need to be trained to travel at the same speed and for the comfort of the patient that they rise and kneel at the same time. The example shown below enabled an officer to be carried some 200 miles across the Sudanese desert in 1885.



Note the longer shafts at the rear

Dog

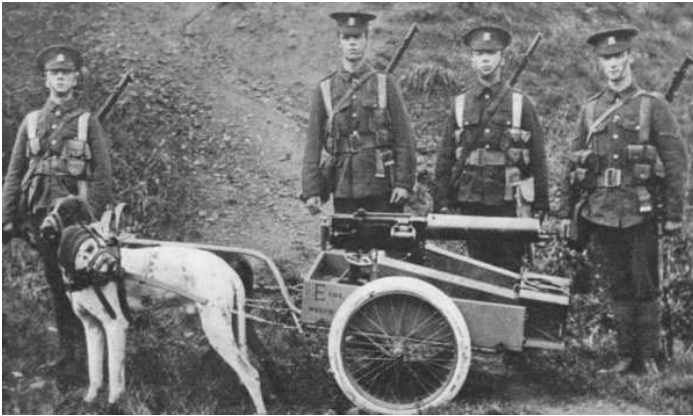
History shows that dogs have been utilised in warfare from as early as 4,000 BC. Their ferocity and keen sense of smell are still recognised today. Their ferocity has not just been used defensively but for attacking the enemy. In the middle ages, large dogs with an aggressive disposition were fitted with spiked collars and body armour to attack enemy cavalry.

In the Spanish-Moroccan war, dogs were camouflaged and released to give the impression of crawling infantry. The Spanish then opened fire, which revealed their positions. In WW2 the Russians trained dogs to blow up tanks, the dogs were trained by starvation and placing food under tanks. Once trained, the starved dog was loaded with explosives and released towards the tanks. A probe fitted on the explosive pack triggered detonation. It is claimed that about 300 German tanks were destroyed by this method. Although it is not clear how they ensured that the dog ran in the right direction. Although the West mocked the system this type of dog training was known to be in use up to 1996.



A bomb dog in training

In WW1 the Belgians used dogs for pulling small ambulance carts but this was not very successful. But they seemed to have more success with dogs towing machine guns and this was tried by the British.



WW1 dog team pulling a machine gun cart (Illustrated War News)



A chance for the dogs to rest (Illustrated War News)

In arctic regions the British have found that a dog can pull a sledge with a total load of 100 lb sufficiently well to keep up with skiers.

In WW1 many armies have found that messenger dogs proved to be a reliable means of communication. Dogs soon adapt to their locality of operations and usually work with two handlers, presumably at each end of the journey and this could be up to a mile away. Dogs are good at weaving their way through undergrowth even under fire, making a difficult target.



Dog with a message container

The problem was that in the trenches, British troops would befriend the dogs and distract them from their task. None the less they were more reliable communicators than pigeons that provide a very obvious target. A pigeon takes a good two weeks to learn where 'home' is located and it must be remembered that a particular pigeon having learnt where it's home is, will only travel a one-way flight. The load that a pigeon can carry is minimal, but this does not mean that the information transferred is minimal. The first time microfilm was used militarily was the Franco-Prussian War of 1870 when film was transferred by carrier pigeon.

Dogs were used successfully in WW1 to help seek out casualties and carry basic medical equipment.

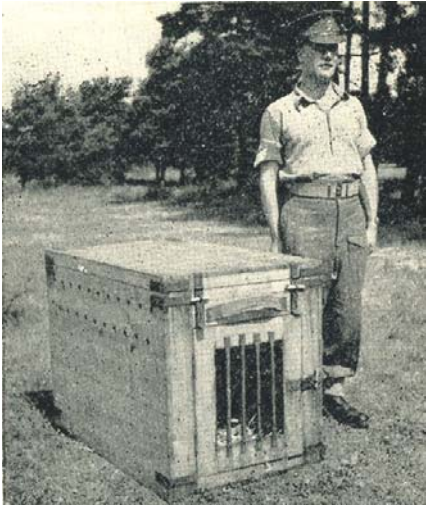


First aid dogs searching no mans land (Illustrated War News)

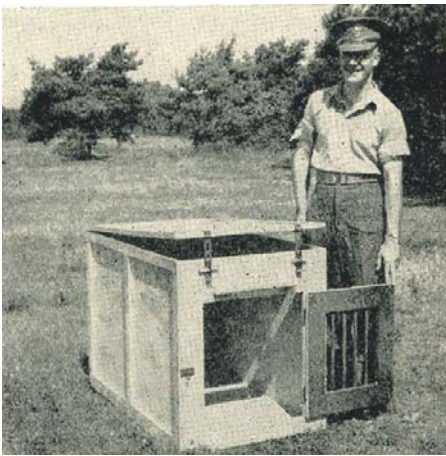


Even into the 1950s pack dogs were still a recognised form of transport.

For journeys of a few hours up to 12 dogs were allowed to travel in the back of a 3-ton truck with their handlers. Straw should be placed on the floor, the dogs need to be muzzled and restrained by a leather lead to prevent fighting. But for longer trips an approved Portable Land or Sea Kennel was used. It was of wooden construction measuring 3 ft 9 in x 2 ft 3 in and 2 ft 8 in high. It weighed 98 lbs, but the Portable Air Kennel of thinner construction weighed only 61 lb but with the same dimensions.



Portable Land or Sea Kennel



Portable Air Kennel

Another role for the dog was in arctic warfare, where a dog could drag a sledge with a maximum load of 100 lb sufficient to keep up with the skiers.

Reindeer

The use of reindeer in warfare might seem almost comical, but it is worth noting that in WW2 100,000 reindeer were engaged in military duties in Finland. Even up to 1959 the British Army still listed reindeer as a transport animal in Arctic regions.

Ox

Around the world oxen are used for pack or draught transport. The British Army has used them as pack animals in Abyssinia and India. They are not such good pack animals as mules and are not suited to front line work. But small oxen with relatively light loads have proved to be useful in negotiating difficult terrain. Surprisingly the saddles have no girth (strap under the belly) so it is important that the loads are accurately balanced particularly when negotiating mountainous terrain. On the flat they can travel at a speed of 2 mph with a load of 160 lb. Oxen are good swimmers and can cope with strong currents and deep water.

When used in the draught role, pairs are yoked together to give a team of 16 oxen to pull a wagon. In the Zulu war in 1879 it was shown that oxen could cover 15 to 20 miles daily with heavy loads over rough terrain averaging 2 to 2½ mph. Oxen seemed particularly sensitive to only working in the environment they find familiar. They are very sensitive to cold and wet weather and can die off quite readily. It was advisable to travel with two spare oxen for each wagon; a sick ox in the team becomes dragged along by the rest and needs to be replaced immediately.

In India oxen were usually employed in just pairs pulling carts. It was unusual for there to be a team of more than 4 oxen but their task was helped by having more roadways in India than in Africa, but with roadwork there is a need for shoeing.

Water Buffalo

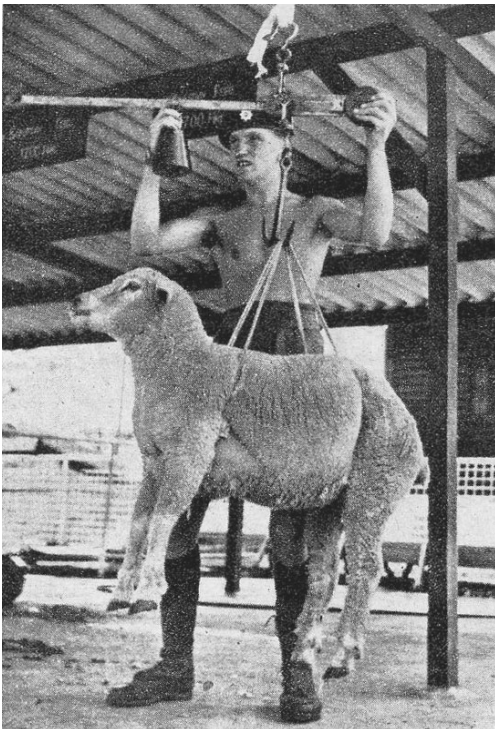
Water buffalo were mainly used in India for draught work. They are slow but powerful animals able to draw heavy loads considerable distances. Their management is much like that for oxen, but as their name suggests, they do like to wallow in water in the heat of the day.

Sheep

Although I can find no early references to using sheep as pack animals, they suddenly are listed in 1959 as a pack animal with a load capacity of 40 lb.



RAVC officer caring for this lamb that is just bit too small for Army service



A larger sheep being weighed in

Yaks

Yaks were listed as having a role in Iceland and Norway.

Elephant

The very size of an elephant means that it is going to have to be a locally sourced form of transport rather than brought any great distance. In WW1 zoo elephants were used to haul heavy equipment in some British munitions factories. But it was in India where elephants saw most service with the British Army. Up to 1951 an elephant could be expected to carry a payload of 1,600 lb but by 1967 this had decreased to 800 lb. The last time elephants were allegedly used on war duties was by Iran in 1987 to transport heavy weaponry.



An elephant receiving the attention of a RAVC officer

Marches

Wherever possible a convoy should consist of echelons of vehicles or animals of the same type. Sometimes a convoy may comprise a variety of animal species, which will travel at different speeds. Animals should not be forced to travel beyond their recognised speed in an attempt to keep up with the faster animals. To avoid overtiring the slower animals by forcing them to keep up, they should travel at the front, which avoids stretching of the column. For example slow moving animals such as camels should lead whereas faster animals such as mules should bring up the rear. The rear of the column should include some empty wagons and spare animals to replace casualties. The reserve animals should not be used to transport excess baggage. The speed of a march across level ground should normally be:

Infantry	3 mph
Mounted troops – walk	3½ mph
Mounted troops – walk & trot	5 mph
Pack mules or ponies	5 mph (3 mph from 1937)
Horse transport & mule carts	2½ mph
Bullock carts	1½ mph
Pack camel	2-3 mph
Ridden camel	10 mph
Pack bullocks	2 mph
Pack donkeys	1½ mph
Coolies	2 mph

These rates may have to be halved on rough or hilly terrain. To estimate the length of a column, the following figures allow for the animal with vehicle and the required spacing.

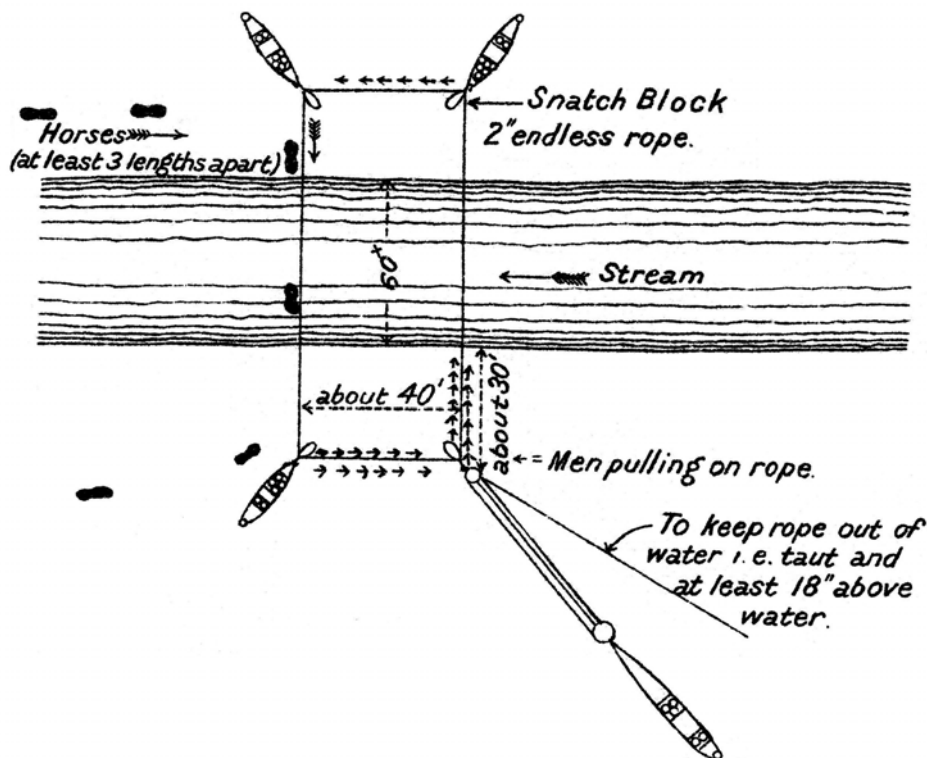
Pack animal (or pair)	4 yds
Camel (or pair)	5 yds
2-mule or pony vehicle	7 yds
1- or 2-horsed vehicle	10 yds
4-horsed vehicle	15 yds
6-horsed vehicle	20 yds
8-horsed vehicle	25 yds
2-bullock vehicle (2-wheeled)	10 yds
4-bullock vehicle (2-wheeled)	15 yds
4-bullock vehicle (4-wheeled)	20 yds

If a convoy is attacked the convoy should not stop. If the convoy is likely to all into enemy hands, the equipment should be destroyed and the animals led away or killed.

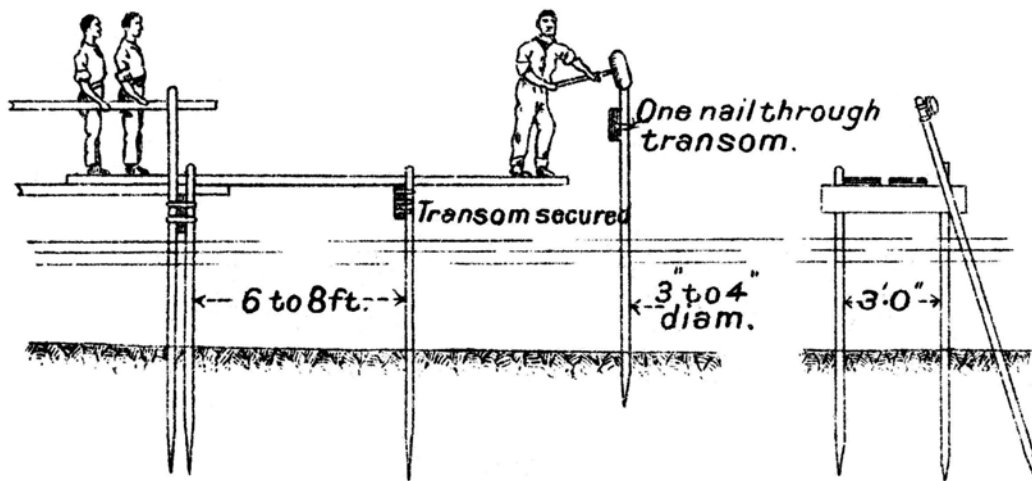
Fording

Although many animals are surprisingly tolerant of going through water, it can be quite difficult to move large numbers of animals across water in an efficient and safe manner. The saddles and loads must be removed from the animals before entering the water. This is not just to prevent the risk of the animal capsizing but also to avoid the stores from becoming wet. Various methods have been devised.

A large loop of rope stretched in a rectangle across a river provides a means of cajoling horses across a river by pulling on their lead ropes. The rope loop is supported in 4 corners by snatch blocks and tensioned from one corner. The length of the rope in the loop should be at least twice the width of the river plus 70 yards. The operation needs one officer and 35 men on the starting side, 4 men lash the horses to the rope and another 15 pull on the rope loop. The horses are stripped of their loads and saddles but retain the head collar and head rope. The horses are attached at 8-10 yard intervals, taking care that the head rope is tightly knotted on the rope loop. On the landing side 25 men are required to pull the loop round as quickly as they can. The horses are received by 4 men who untie the head ropes, but ready with knives to cut any stubborn knots. A further 6 men lead the horses away.



If the riverbed is reasonably soft, piles can be driven in to construct a *Rapid Light Pile Foot Bridge*. Attendants walk across the footbridge leading the animals in the water.



As the name and frailty of construction suggest, this is pedestrian only bridge. In 1909 it seemed to be the responsibility of a general staff officer at the approach to a bridge to give instructions to commanders of units about the suitability of the crossing. By 1911 the responsibility of giving the bridge a load classification passed to the engineers in the unit constructing the bridge. They were required to indicate at each end of the bridge the greatest permissible load. The examples below take little account of motor transport:

“Bridge to carry infantry in fours”

“Bridge to carry infantry in file”

“Bridge to carry guns not heavier than 18-pr”

“Not for animals”

“Bridge for all arms. No road engines”

By 1924 a simpler classification was in use:

“Foot-bridges”- Infantry in single file.

“Pack-bridges” - Infantry in single file, cavalry in single file, pack animal transport.

“Medium bridges” - Infantry in fours, cavalry in half-sections, horsed transport, cars, armoured cars, light & med artillery, 3-ton lorries & all ordinary MT up to 5½-ton axle load.

“Heavy bridges” – Heavy artillery, tractors & MT up to 16-ton axle load, tanks up to 18 tons.

“Super-heavy bridges” – Axle loads & tanks in excess of above loads.

By 1935 the classification in use was refined further:

“Assault”- Infantry in single file.

“Pack” - Infantry in single file, cavalry in single file, pack animal transport.

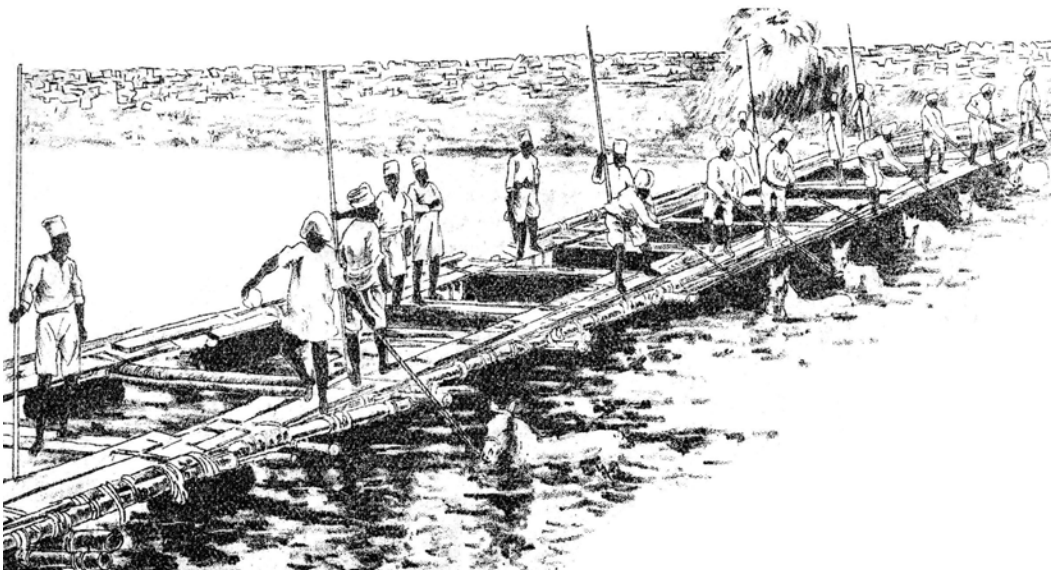
“Light” - Infantry in fours, cavalry in half-sections, vehicles & weapons with forward units, horsed transport, horse & field artillery, cars, ambulances, lorries & AFVs max 4½-ton weight.

“Medium”-All loads normally with a division, 4-whld MT up to axle load of 5.7 tons, 6-whld vehicles max axle load 3.6 tons or a rear bogie of 7.2 tons.

“Heavy” - All loads normally with an army in the field. All 4-whld MT, 6-whld MT up to axle load of 8.25 tons or bogie load of 16.5 tons, tracked vehicles with sprung tracks up to 19.25 tons, provided track bearing length is not less than 13 feet.

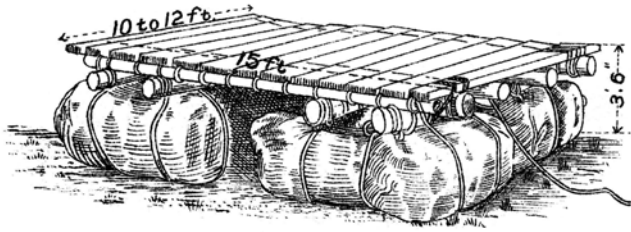
“Super-heavy”- Vehicles whose weights exceed “Heavy”

By 1939 all bridges were classed according to the maximum weight of a vehicle in tons giving the following Classes 5, 9, 12, 18 or 24. It should be noted that bridge classes apply not just to fixed bridges but to pontoon bridges as well. In the absence of bridges, use can be made of walkways built on pontoons so that an attendant on the walkway can rapidly lead an animal whilst it still is in the water.



Some men leading animals whilst other men are needed to stabilise the pontoon looked on by supervisors.

This pontoon known as a *Cask Foot Bridge* consists of a wooden walkway connecting a series of rafts. The flotation for the rafts can be obtained from barrels or can be fabricated from tarpaulins stuffed with straw.



Raft of four tarpaulins

Water

The supply of clean water is essential for any fighting force. It has been reckoned that a soldier requires 2-5 gallon daily for drinking, washing, cooking. Dispensing with washing can reduce the daily requirement to 1 gallon but increases risk of disease. It is sobering to realise that the 100 years before WW1 all British Army campaigns lost more men through disease than enemy action. It understandable that water consumption increases with its availability:

Soldier (British) in barracks on plains	20 gallons
Soldier (Indian) in barracks on plains	8 gallons
Soldier (British) in barracks in hills	15 gallons
Soldier (Indian) in barracks in hills	5 gallons
Camps with no clothes washing	3 gallons
Bivouacs, drinking & cooking only	1 gallon
Drinking only min. cold weather (India)	4 pints

Animals of course need water, but require no allocation for washing and cooking.

Elephant	25 gallons
Horse	10 gallons
Bullock	10 gallons
Camel	10 gallons
Ox	8 gallons
Mule	5 gallons
Sheep	2 gallons
Pig	2 gallons

Water is quite heavy and the amount that can be carried by animal or man is strictly limited.

Mule pakahl (tank)	6½ gallons
Camel pakahl (tank)	12½ gallons
Regimental water cart	100 gallons
Soldier's water bottle	1¾ pints
Water carriage pack	150 gallons

Although reserve water is carried for troops there is no provision for animals, careful planning is needed to find water along the way. An additional factor is that animals will not usually drink in the early morning, so if a march starts early then watering will be required after a couple of hours. Even when crossing fords animals should not be allowed to stop to drink, this can cause chaos to the convoy and watering should take place at defined halts. Ideally a halt should last at least an hour, if the animals are to fed and watered. During this time they should be rested by having their loads and saddles removed. Animals watered from a stream must always be down stream from where troops obtain their drinking water. If the waterfront is small, watering should be done on a rota system. If there is no running water then animals must be watered from buckets. With large animal movements canvas troughs with a capacity of up to 350 gallons could be provided. Mules much prefer to have their own watering place, which should be kept separate from areas used by horses. In camp it is important to indicate the type of water point by the use of flags. These areas were identified by *Flags, Distinguishing, Water Supply supported on Poles 10 ft in two parts.*

Blue flag – Animal watering

White flag – Water for human purposes & MT radiators

Red flag – Water for personal ablution, washing clothes etc



Burma 1944, a brief water halt on the road to Mandalay

Generally animals in military service will be expected to carry a greater payload and over greater distances in more challenging circumstances than in civilian life. With this demand there is an increase in the amount of food and water needed to obtain an increase in energy needed. This is not a sentimental animal welfare issue, but one of key military importance. Without attention to the proper nourishment of the animal the performance of animal transport will deteriorate rapidly.

Waste disposal

Animal manure and human faeces can be disposed of by burning, tight packing, spreading. In hot climates manure can be spread on the ground to a depth of 2 inches. Raked over daily until dry and by the fourth day, it can be collected and laid to a depth of 9 inches for road making.

Disposal of dead animals always presents a problem. It is important to try to reduce the chance of disease being spread by flies from decomposing animals. Burial or cremation are the main methods of disposal. But these methods can be expensive in manpower and resources, particularly with large animals or where several animals need to be processed. Burying is labour intensive and impossible in a fighting environment. Although cremation is the method of choice, even the burning of a mule requires, 80 lb of hay or straw, 80 lb of wood and 2 gallons of kerosene. A compromise between the two methods was developed whereby a pit was dug next to the animal. The animal was disembowelled and the viscera cut open to release gases then buried in the pit. The carcass was then dragged over the buried viscera and blood soaked soil. The carcass cavity was packed with 30-40 lb of dry grass or rubbish soaked in kerosene and then set alight. The effect of this is not intended to be incineration but produce charring. This is sufficient to no longer be of interest to flies. If time and circumstances do not permit that, then the animal viscera should still be buried but the carcass left to rot or be devoured by wild animals.

Grooming

Most animals require daily grooming; this helps keep the coat and skin in good condition. Combing and brushing is important to remove mud, dust, parasites etc. Massaging is also beneficial in removing dry skin, stimulating circulation and inspecting the animal for wounds. It is an opportunity for the handler to become acquainted with the animal and sometimes seems pleasurable to the animal.



Skin massage

Naming

All military vehicles have a registration number as a unique identification. But AFVs in particular are quite commonly given names within a unit for quick identification; the same applies to most animals. During WW2 the US Army adopted the Preston system of numbering animals. The British Army also adopted the system and applied it mules, horses and dogs. If all animals in service were given a unique identification number, the number would extremely long, difficult to use and prone to errors. The Preston system allows batches of 4,000 animals to have a unique identification using a single letter and 3 digits.

A sequence of animal identifications might run A000, A001, A002, A003 etc up to A999 representing a thousand different identities. The next batch of a thousand would run 0A00, 0A01, 0A02, 0A03 etc up to 9A99. The third sequence would start 00A0 ending with 99A9. The fourth and final batch would start 000A and end with 999A.

Sometimes on large animals this identity was branded on, but certainly for small animals like dogs the identity was tattooed on the left ear. Clearly a dog is unlikely to respond to a call such as “54A7 come here” so short two-syllable names are chosen trying to match the dogs characteristics e.g. “Fury” for a particularly aggressive dog. Sometimes the dog has to be taught a new name if there is duplication. This happens particularly with dogs brought in from civilian life. In the 1950s the most popular dog names were Rex, Rover, Caesar. But nowadays the most popular names are apparently Max, Molly, Sam, Ben, Tyson, Gucci etc.



The tattooing device needs to be held in place for 3 seconds for the ink to penetrate the ear lobe

Payloads

Maximum loads for each animal type obviously vary, not just with the particular breed but with the individual animal, it's stature and upbringing. Allowances should also be made in wet weather for absorbent materials such as blankets, clothing, tents etc that will increase the payload significantly. No load should exceed 30 in long, 15 in wide or 20 inches high. Many of the loads quoted in manuals have varied with time, where this occurs I have quoted the upper and lower limits:

Elephant	800-1600 lb
Camel	250-400 lb
Mule (mountain artillery)	260-340 lb
Packhorse	200 lb
Pony, yak, bullock, water buffalo	160-200 lb
Mule GS	160 lb
Donkey	100 lb
Sheep	40 lb

It is interesting to consider the percentage of body weight to load. It is the poor soldier who carries 40% of his body weight, messenger dog 30%, most pack animals carry 24%, the camel carries 22% but the elephant gets away with only carrying 14% of it's body weight.

The above is just a tiny insight into the role of animals in military transport. I am sorry there is so much that had to be left out. But for the keen reader there are many books about animals in warfare. I have not referred to these, but just relied on official books that I have in my collection. They give an intriguing insight into the official and sometimes quirky attitudes and policies that have prevailed during the last century. Next time I will consider ponies and horses in a transport role including carts and wagons.

References

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| A/26/GS Trg Pubs/2887 | Royal Corps of Transport Training, Officers Pocket Book. Jun.1967 |
| Army Code No.70182 | Admin. in the Field. Chap 7. Sect 10 – Animal Transport. 1966 |
| 20/Commissariat Corps/12 | Standing Orders for The Commissariat & Transport Corps. Sept.1884 |
| 24/Gen No/6529 | Manual of Military Hygiene. 1921 |
| 26/GS Trg Pubs/1956 | Admin. in the Field Vol. I. Admin. within the Division. 1951 |
| 26/GS Trg Pubs/1984 | Training of War Dogs. 1952 |
| 26/GS Trg Pubs/2415 | Admin. in the Field Vol. I. Admin. within the Corps. Appdx S. Notes on Animal Transport. 1959 |
| 26/GS Pubs/170 | Protection against Gas & Air Raids. Pamphlet No.1. Protection Against Gas in the Field. 1939 |
| 26/GS Pubs/176 | Field Service Regulations. Vol. I. Organization & Administration. Dec.1939 |
| 26/GS Pubs/3780 | Field Service Pocket Book Pam. No.5. Camps & Bivouacs, Camp Cooking & Water Arrangements. 1939 |
| 26/Manuals/1760 | Royal Army Service Corps Training Vol.I Training & War 1937 |
| 26/Manuals/2710 | Handbook of Military Hygiene. 1941 |
| 26/Regulations/189 | Field Service Regulations. Vol. I. Organization & Administration. 1930 |
| 26/Regulations/1468 | Field Service Regulations. Vol. II. Operations – General. 1935 |
| 40/WO/543 | Royal Army Medical Corps Training. 1908 |
| 40/WO/1071 | Manual of Field Engineering 1911 |
| 40/WO/1295 | Royal Army Medical Corps Training. 1911 |
| 40/WO/1680 | Manual of Elementary Military Hygiene. 1912 |
| 40/WO/2232 | Field Service Regulations. Part 1. Operations 1909. |
| 40/WO/2344 | Army Service Corps Training. Part 1. 1909 |
| 40/WO/2923 | Field Service Pocket Book 1914. Reprinted with Amendments 1916 |
| 40/WO/8847 | Field Service Regulations. Vol. II. Operations. 1924 |
| 116/Vet/294 | Animal Management. 1933 |
| MDMS-FI (N) | Field Service Hygiene Notes India. 1940 |
| British Army Journal No.1 | Quis custodet custodes ipsos by Mulus. January 1949 |
| With Our Army in Palestine by Antony Bluett | 1919 |
| Zion Muleteers of Gallipoli by Martin Sugarman | 2007 |

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